

Mathematical Literacy for College Students (MLCS)

Mathematics Student Learning Outcomes

NUMERACY

NUMERACY GOAL: Students will develop and apply the concepts of numeracy to investigate and describe quantitative relationships and solve problems in a variety of contexts.

Students will:

A. Demonstrate operation sense and communicate verbally and symbolically the effects of common operations on numbers.

For example: Display proficiency in making calculations by hand and with the aid of technology with numerical operations and their inverses; Determine whether the result of an operation will be larger or smaller than the operands, etc.

B. Demonstrate competency in using and an understanding of magnitude in the context of place values, fractions, and numbers written in scientific notation.

For example: Order sets of real numbers.

C. Use estimation skills, knowing how and when to estimate results, to solve problems and detect errors (check accuracy).

For example: Give answers to an appropriate level of precision; Use order of operations in evaluating formulas. Know when it is more appropriate to use the actual number and when it is more appropriate to use a rate. For instance when comparing crime statistics between a medium sized and a large city the rate per 10,000 is probably more useful than the number of crimes.

D. Apply quantitative reasoning to solve problems involving quantities or rates

For example: Finding the cost of flooring for a given region or find the cost per mile to operate a vehicle given its MPG and the cost of a gallon of fuel.

E. Demonstrate measurement sense.

For example: Calculate perimeter, area, and volume of irregular shapes; Exhibit an awareness of and understanding of estimation, error, and precision as related to computation in lengths, areas, and volumes; find unknowns, using appropriate units, using formulas from geometry, convert units within a system.

F. Explain and/or interpret data, using measures of central tendency, measures of variation, and mathematical models.

G. Read and make decision based upon data from line graphs, bar graphs, and charts.

- (prereq) Use arithmetic operations to represent real-world operations, such as putting together, comparing, distributing equally, etc. and use real-number arithmetic to solve stated problems. Use graphical representations on a number line to demonstrate fluency in interpreting interval notation, ordering numbers, representing operations (*i.e.*, addition, subtraction, doubling, halving, and averaging) and representing decimal numbers, including negative numbers.